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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ibrahim Abdulhalim, et al.
Title: Periodic Patterns And Technique To Control Misalignment Between Two Layers
Application No.: 09/833,084 Filing Date: April 10, 2001
Examiner: Zandra V. Smith Group Art Unit: 1775
Docket No.: TNCR.196US0 Conf. No.: 8866

Certificate of Mailing Under 37 CFR 1.8

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Signature

Tracy M. Smith

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant(s) call(s) the documents listed on the enclosed Form PTO-1449 to the Examiner's attention in this patent application.

Copies of the documents listed on the accompanying Form PTO-1449 are enclosed.


Citation of these documents shall not be construed as (1) an admission that the documents are prior art with respect to the invention or inventions claimed in this application, (2) a representation that a search has been made (other than as indicated by any cited document), or (3) an admission that the cited information is, or is considered to be, material to patentability as defined in § 1.56(b).

Attorney Docket No.:
TNCR.196US0

Application No.:
09/833,084

This information disclosure statement is submitted under 37 C.F.R. § 1.97(b) and consequently no fee should be required. The Commissioner is authorized, however, to charge any fee that may be required, or to credit any overpayment, against Deposit Account No. 502664. This form is being submitted in duplicate.

Respectfully submitted,


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U.S. Department of Commerce, Patent and Trademark		Atty. Docket No.	Application No.
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		Ibrahim Abdulhalim, et al.	8866
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OTHER ART – con. (Including Author, Title, Date, Pertinent Pages, Etc.)			
	84	“Automatic In-Situ Focus Monitor Using Line Shortening Effect”, Journal: Proceedings of the SPIE, vol. 3677, pt. 1-2. p. 184-93 (Abstract)	
	85	“Characterization and Monitoring of Variable NA and Variable Coherence Capable Photo Steppers Utilizing the Phase Shift Focus Monitor Reticule”, Journal: Proceedings of the SPIE, vol. 2439, p. 61-9. (Abstract)	
	86	“Modeling of Optical Scatterometry with Finite-Number-of-Periods Grating”, Journal: Proceedings of the SPIE, vol. 3743, p. 41-8. (Abstract)	
	87	“Grazing Incidence Diffraction By Laterally Patterned Semiconductor Nanostructures”, Journal: Journal of Physics, vol. 32 no. 6, p. 726-40. (Abstract)	
	88	“A Mask-to-Wafer* Alignment and Gap Setting Method for E-Ray Lithography Using Gratings”, Journal: Journal of Vacuum Science & Technology B. vol. 9, no. 6. p. 3202-6. (Abstract) ✓	
	89	“Diffraction and Interference Optics for Monitoring Fine Dimensions in Device Manufacture”, Solid State Devices, 1983. (Abstract)	
	90	“Performance of New Overlay Measurement Mark”, Sung-Man Bae and Ki-Ho Baik, SPIE, vol. 2725 p. 424-435.	
	91	“Automatic Classification of Spatial Signatures on Semiconductor Wafermaps”, Tobin et al., SPIE, vol. 3050, p. 434-444.	
	92	“Kinetics of the Diffraction Efficiency of Light-Induced Dynamic Gratings in Layers of Disordered Semiconductors”, Arkhipov et al., Quantum Electron, vol. 23, November 1993, p. 986-988.	
	93	“Optimal Sampling Strategies for sub-100 nm Overlay”, Rangarajan et al., SPIE, vol. 3332, p. 348-359.	
	94	“Super Sparse Overlay Sampling Plans: An Evaluation of Methods and Algorithms for Optimizing Overlay Quality Control and Metrology Tool Throughput”, Pellegrini et al., SPIE, vol. 3677, p. 72-82, March 1999.	
	95	“Comparison of Optical, SEM and SFM Overlay Measurement”, Jaiprakash and Gould SPIE. Vol. 3677, p. 229-238, March 1999.	
	96	“Formation of Periodic Diffraction Structures at Semiconductor Surfaces for Studying the Dynamics of Photoinduced Phase Transitions”, Fattakhov et al., Optics and Spectroscopy, vol. 89, p. 136-142 (2000)	
	97	Photoreactive Optical Properties of Volume Phase Gratings Induced in Sillenite Crystals, When The Grating Vector Lies on the (111) Plane”, Papzoglou et al., Applied Physics B 71, p. 841-848 (2000)	
	98	“Minimization of Total Overlay Errors on Product Wafers Using an Advanced Optimization Scheme”, Levinson et al., SPIE, p. 362-73. (Abstract)	

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U.S. Published Patent Application Documents							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	63	2002/00072001	Jun. 13, 2002	Brown et al.			
	64	2003/0002043	Jan. 2, 2003	Abdulhalim et al.			
	65	2003/0020184	Jan. 30, 2003	Ballarin			
Foreign Patent Documents							
							Translation
		Document	Date	Country	Class	Subclass	Yes No
	66	WO03042629	May 22, 2003	WIPO			
	67	WO02/050509	Jun. 27, 2002	WIPO			
	68	WO99/45340	Sep. 10, 1999	WIPO			
	69	WO03001297	Jan. 3, 2003	WIPO			
	70	WO0184382	Nov. 8, 2001	WIPO			
	71	WO0218871	Mar. 7, 2002	WIPO			
	72	WO03054475	Jul. 3, 2003	WIPO			
	73	WO95/02200	Jan. 19, 1995	WIPO			
	74	WO 99/56174	Nov. 4, 1999	WIPO			
	75	WO85/04266	Sep. 26, 1985	WIPO			
	76	JP60126881	Jul. 6, 1985	Japan			Abstract
	77	JP11086332	Mar. 30, 1999	Japan			Abstract
	78	JP63-243804	Oct. 11, 1988	Japan			Abstract
OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)							
	79	"Phase-Sensitive Overlay Analysis Spectrometry", IBM TDB, March 1990.					
	80	"Interferometric Method of Checking the Overlay Accuracy in Photolithographic Exposure Processes", IBM TDB, March 1990.					
	81	"Interferometric Measurement System for Overlay Measurement in Lithographic Processes", IBM TDB, Feb. 1994.					
	82	"Mask Overlay Determination", IBM TDB, Dec. 1978.					
	83	"Width and Overlay Narrow Kerf Test Site", IBM TDB, April 1978					

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U.S. Patent Documents

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	1	4,103,998	Aug. 1, 1978	Nakazawa et al.			
	2	4,167,337	Sep. 11, 1979	Jaerisch et al.			
	3	4,631,416	Dec. 23, 1986	Trutna, Jr.			
	4	4,750,836	Jun. 14, 1988	Stein			
	5	4,818,110	Apr. 4, 1989	Davidson			
	6	4,820,055	Apr. 11, 1989	Muller			
	7	4,828,392	May 9, 1989	Nomura et al.			
	8	4,848,911	Jul. 18, 1989	Uchida et al.			
	9	4,929,083	May 29, 1990	Brunner			
	10	4,999,014	Mar. 12, 1991	Gold et al.			
	11	5,112,129	May 12, 1992	Davidson et al.			
	12	5,114,235	May 19, 1992	Suda et al.			
	13	5,166,752	Nov. 24, 1992	Spanier et al.			
	14	5,172,190	Dec. 15, 1992	Kaiser			
	15	5,182,455	Jan. 26, 1993	Muraki			
	16	5,182,610	Jan. 26, 1993	Shibata			
	17	5,189,494	Feb. 23, 1993	Muraki			
	18	5,316,984	May 31, 1994	Leroux			
	19	5,327,221	Jul. 5, 1994	Saithoh et al.			
	20	5,340,992	Aug. 24, 1994	Matsugu et al.			
	21	5,343,292	Aug. 30, 1994	Brueck et al.			
	22	5,414,514	May 9, 1995	Smith et al.			
	23	5,465,148	Nov. 7, 1995	Matsumoto et al.			
	24	5,525,840	Jun. 11, 1996	Tominaga			
	25	5,596,406	Jan. 21, 1997	Rosencwaig et al.			
	26	5,596,413	Jan. 21, 1997	Stanton et al.			
	27	5,608,526	Mar. 4, 1997	Piwonka-Corle et al.			
	28	5,666,196	Sep. 9, 1997	Ishii et al.			
	29	5,739,909	Apr. 14, 1998	Blayo et al.			
	30	5,801,390	Sep. 1, 1998	Shiraishi			

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				April 10, 2001		1775	
U.S. Patent Documents (con.)							
	31	5,883,710	Mar. 16, 1999	Nikoonahad et al.			
	32	5,889,593	Mar. 30, 1999	Bareket			
	33	5,909,333	Jun. 1, 1999	Best et al.			
	34	5,910,841	Jun. 8, 1999	Masao			
	35	5,912,983	Jun. 15, 1999	Hiratsuka			
	36	5,923,041	Jul. 13, 1999	Cresswell et al.			
	37	6,013,355	Jan. 11, 2000	Chen et al.			
	38	6,046,094	Apr. 4, 2000	Jost et al.			
	39	6,077,756	Jun 20, 2000	Lin et al.			
	40	6,079,256	Jun. 27, 2000	Bareket			
	41	6,081,325	Jun. 27, 2000	Leslie et al.			
	42	6,128,089	Oct. 3, 2000	Ausschnitt et al.			
	43	6,134,011	Oct. 17, 2000	Klein et al.			
	44	6,153,886	Nov. 28, 2000	Hagiwara et al.			
	45	6,160,622	Dec. 12, 2000	Dirksen et al.			
	46	6,165,656	Dec. 26, 2000	Tomimatu			
	47	6,177,330	Jan. 23, 2001	Yasuda			
	48	6,197,679	Mar. 6, 2001	Hattori			
	49	6,255,189	Jul. 3, 2001	Muller et al.			
	50	6,301,001	Oct. 9, 2001	Unno			
	51	6,323,560	Nov. 27, 2001	Narimatsu et al.			
	52	6,342,735	Jan. 29, 2002	Colelli et al.			
	53	6,420,791	Jul. 17, 2002	Huang et al.			
	54	6,420,971	Jul. 16, 2002	Leck et al.			
	55	6,421,124	Jul. 16, 2002	Matsumoto et al.			
	56	6,462,818	Oct. 8, 2002	Bareket			
	57	6,476,920	Nov. 5, 2002	Scheiner et al.			
	58	6,486,954	Nov. 26, 2002	Mieher et al.			
	59	6,522,406	Feb. 18, 2003	Rovira et al.			
	60	6,590,656	Jul. 8, 2000	Xu et al.			
	61	6,611,330	Aug. 26, 2003	Lee et al.			
	62	6,633,831	Oct. 14, 2003	Nikoonahad et al.			

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	99	“A New Technique for Multiple Overlay Check”, Auzino et al., Microelectronic Engineering, p. 41-42. (Abstract)	
	100	“Alignment Mark Optimization to Reduce Tool and Wafer-Induced Shift for XTRA-1000”, Ina et al., Japanese Journal of Applied Physics, vol. 38, no. 12B, p. 7065-70. (Abstract)	
	101	“Towards the Optimal Design of Binary Optical Elements with Different Phase Levels Using a Method of Phase Mismatch Correction”, Kodate et al., Trends in Optics and Photonics, vol. 41, p. 174-6. (Abstract)	
Examiner		Date Considered	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.			